

**METHOD OF PRODUCING NITRIDE-BASED HETEROSTRUCTURE
DEVICES**

ABSTRACT OF THE DISCLOSURE

5 A method of producing nitride based heterostructure devices by using a
quaternary layer comprised of AlInGaN. The quaternary layer may be used in
conjunction with a ternary layer in varying thicknesses and compositions that
independently adjust polarization charges and band offsets for device structure
optimization by using strain compensation profiles. The profiles can be adjusted
10 by altering profiles of molar fractions of In and Al.